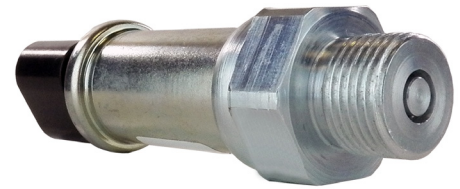


## Application Note

# Honeywell Pressure Switch High Pressure Premium HPS Series



### Background

---

With the demanding conditions found within transportation and industrial industries, pressure switches are often designed into equipment and vehicle applications to make or break an electrical connection in response to a system pressure change. These switches are frequently exposed to chemical splashes, dirt, grime, and harsh media, as well as performance spikes. They must deliver reliable and consistent performance along with having a high life cycle rating.

### Potential Applications

**Transportation:** Heavy construction and agricultural vehicles, material handling equipment, railroad equipment, and hydraulic brake systems

**Industrial:** Presses and punches, fracking equipment, CNC machines, pressure washers, mud pumps, trash compactors, water-jet cutting machines, compressors and boilers, and most types of industrial machinery that use high pressure hydraulic fluids

### Solution

---

The Honeywell Pressure Switches, High Pressure Premium, HPS Series is a portfolio of durable, reliable electromechanical gauge pressure on/off switches that are available with either single pole single throw (SPST) normally open or normally closed circuitry, or single pole double throw (SPDT) circuitry. The HPS Series' IP67 environmental sealing and high proof pressure and burst pressure ratings allow for use in a variety of rugged applications that require the making or breaking of an electrical connection in response to a pressure change of the system media.

The media (gas or liquid) pressure is applied via the port of the switch. The media pushes against a piston. There is a pre-tensioned spring on the other side of the piston. If the force resulting from the pressure is greater than the tension on the spring, then the piston will move the electrical contacts within the switch. If the contacts are normally open when no pressure is applied, they close on increasing pressure when the set point is reached. On decreasing pressure, the contacts will open again at a pressure somewhat less than the set switching point. The difference between the activation point on increasing pressure and the deactivation point on decreasing pressure is called hysteresis. The set point pressure for the switch can be configured such that the switch will actuate on increasing or decreasing system pressure.

### Customer Benefits

---

- Up to 2 million life cycle rating provides long life in the application
- IP67 sealing ensures that media ingress will not create switch failure, allowing for use in harsh applications where the switch experiences fluid splashes or temporary immersion and enhancing reliability and durability
- High proof [10000 psi] and burst pressure [20000 psi] ratings reduce field failures and warranty costs, allowing for use in a wide range of applications
- Compatibility with a wide variety of media [petroleum-based hydraulic fluids (engine oil, gasoline, diesel, transmission fluid, etc.), pressurized air, water, mineral oil-based brake fluid, and more] allows for operation in a variety of tough environments
- Designed to maintain its set point accuracy [ $\pm 2\%$ ], providing efficient operation of equipment
- Wide operating temperature range of  $-40\text{ }^{\circ}\text{C}$  to  $120\text{ }^{\circ}\text{C}$  [ $-40\text{ }^{\circ}\text{F}$  to  $248\text{ }^{\circ}\text{F}$ ] allows for use in rugged outdoor applications
- Wide pressure switching point range [150 psi to 4500 psi] allows for use in a wide range of applications

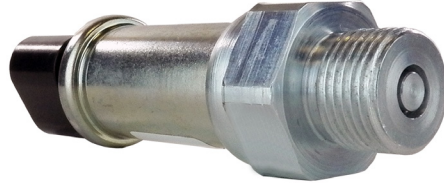
# Application Note

## Honeywell Pressure Switch

### High Pressure Premium HPS Series

Honeywell Pressure Switch  
High Pressure Premium HPS Series

Features and Benefits (in addition to value propositions)



- ★ **Up to 2 million life cycle rating:** Provides long life in the application
- ★ **IP67 sealing rating:** Ensures media ingress will not create switch failure; allows for use in harsh applications where the switch experiences fluid splashes or temporary immersion, enhancing reliability and durability
- ★ **Wide selection of pressure ports and electrical terminations:** Allows customers the ability to configure the pressure switch to meet their specific application needs; configurability of electrical terminations allows global customers that have unique regional and platform need to develop a comprehensive portfolio of products
- **Pressure switching point range (150 psi to 4500 psi [10 bar to 310 bar]):** Allows for potential use in a wide range of applications
- **Up to ±2% switching point accuracy:** Provides efficient operation of equipment
- **-40 °C to 120 °C [-40 °F to 248 °F] operating temperature range:** Allows for use in rugged outdoor applications
- **5 mA to 5 A switching capability:** Allows for potential use in a wide range of applications, from heavy loads to those connected to an electronic control unit
- **Hysteresis option:** Helps improve system operation
- **High proof (10000 psi [689 bar]) and burst pressure (20000 psi [1379 bar]) ratings:** Reduces field failures; allows for use in a wide range of applications, thereby allowing customer to consolidate suppliers
- **Global supply chain:** The cycle and product development time is reduced allowing for quick availability of product samples
- **Global support:** Honeywell's global presence offers customers immediate product and application support throughout the development cycle, from design to global manufacturing
- **Cost effective:** The HPS Series' configurability can reduce design and implementation costs of the end product for the customer; additionally, this building block approach allows Honeywell to meet each customers' unique product requirements without the need for incremental tooling charges, helping to reduce the customers' costs
- **Durable:** Can operate in a variety of tough environments due to compatibility with a wide variety of media [petroleum-based hydraulic fluids (engine oil, gasoline, diesel, transmission fluid, etc.), pressurized air, water, mineral oil-based brake fluid, and more]

★ Competitive differentiator

#### Find Out More

To learn more about Honeywell safety solutions, contact a Honeywell representative today at **1-800-537-6945**, e-mail [info.sc@honeywell.com](mailto:info.sc@honeywell.com), or visit [sensing.honeywell.com](http://sensing.honeywell.com)

Sensing and Control

Honeywell

1985 Douglas Drive North

Golden Valley, MN 55422

[sensing.honeywell.com](http://sensing.honeywell.com)

**Warranty.** Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

009605-1-EN IL50 GLO Printed in USA.

January 2013

Copyright © 2013 Honeywell International Inc. All rights reserved.

# Honeywell